

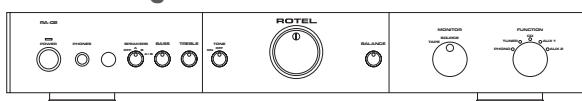
ROTEL

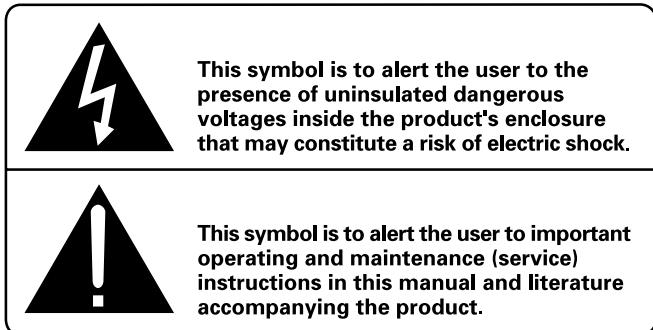
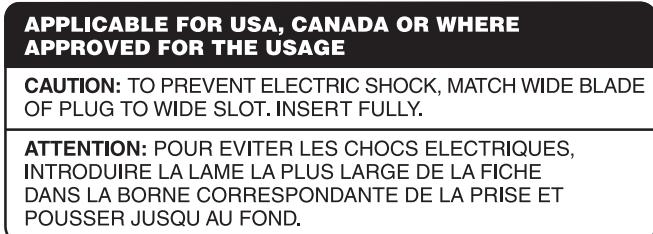
Owner's Manual
Manuel d'utilisation
Bedienungsanleitung
Manuale di Istruzioni
Manual de Instrucciones
Gebruiksaanwijzing
Bruksanvisning

RA-02

Stereo Integrated Amplifier
Amplificateur Intégré Stéréophonique

Stereo-Vollverstärker
Amplificatore Integrato Estereofonico
Amplificador Integrado Estereofónico
Geïntegreerde Stereo Versterker
Integrerad Stereoförstärkare





Important Safety Instructions

WARNING: There are no user serviceable parts inside. Refer all servicing to qualified service personnel.

WARNING: To reduce the risk of fire or electric shock, do not expose the unit to moisture or water. Do not allow foreign objects to get into the enclosure. If the unit is exposed to moisture, or a foreign object gets into the enclosure, immediately disconnect the power cord from the wall. Take the unit to a qualified service person for inspection and necessary repairs.

Read all the instructions before connecting or operating the component. Keep this manual so you can refer to these safety instructions.

Heed all warnings and safety information in these instructions and on the product itself. Follow all operating instructions.

Clean the enclosure only with a dry cloth or a vacuum cleaner.

You must allow 10 cm or 4 inches of unobstructed clearance around the unit. Do not place the unit on a bed, sofa, rug, or similar surface that could block the ventilation slots. If the component is placed in a bookcase or cabinet, there must be ventilation of the cabinet to allow proper cooling.

Keep the component away from radiators, heat registers, stoves, or any other appliance that produces heat.

The unit must be connected to a power supply only of the type and voltage specified on the rear panel of the unit.

Connect the component to the power outlet only with the supplied power supply cable or an exact equivalent. Do not modify the supplied cable in any way. Do not attempt to defeat grounding and/or polarization provisions. Do not use extension cords.

Do not route the power cord where it will be crushed, pinched, bent at severe angles, exposed to heat, or damaged in any way. Pay particular attention to the power cord at the plug and where it exits the back of the unit.

The power cord should be unplugged from the wall outlet if the unit is to be left unused for a long period of time.

Immediately stop using the component and have it inspected and/or serviced by a qualified service agency if:

- The power supply cord or plug has been damaged.
- Objects have fallen or liquid has been spilled into the unit.
- The unit has been exposed to rain.
- The unit shows signs of improper operation
- The unit has been dropped or damaged in any way

Place the unit on a fixed, level surface strong enough to support its weight. Do not place it on a moveable cart that could tip over.



Figure 1: Controls and Connections
Commandes et branchements
Bedienelemente und Anschlüsse
Controlli e collegamenti
Controles y Conexiones
De bedieningsorganen en de aansluitingen
Funktioner och anslutningar

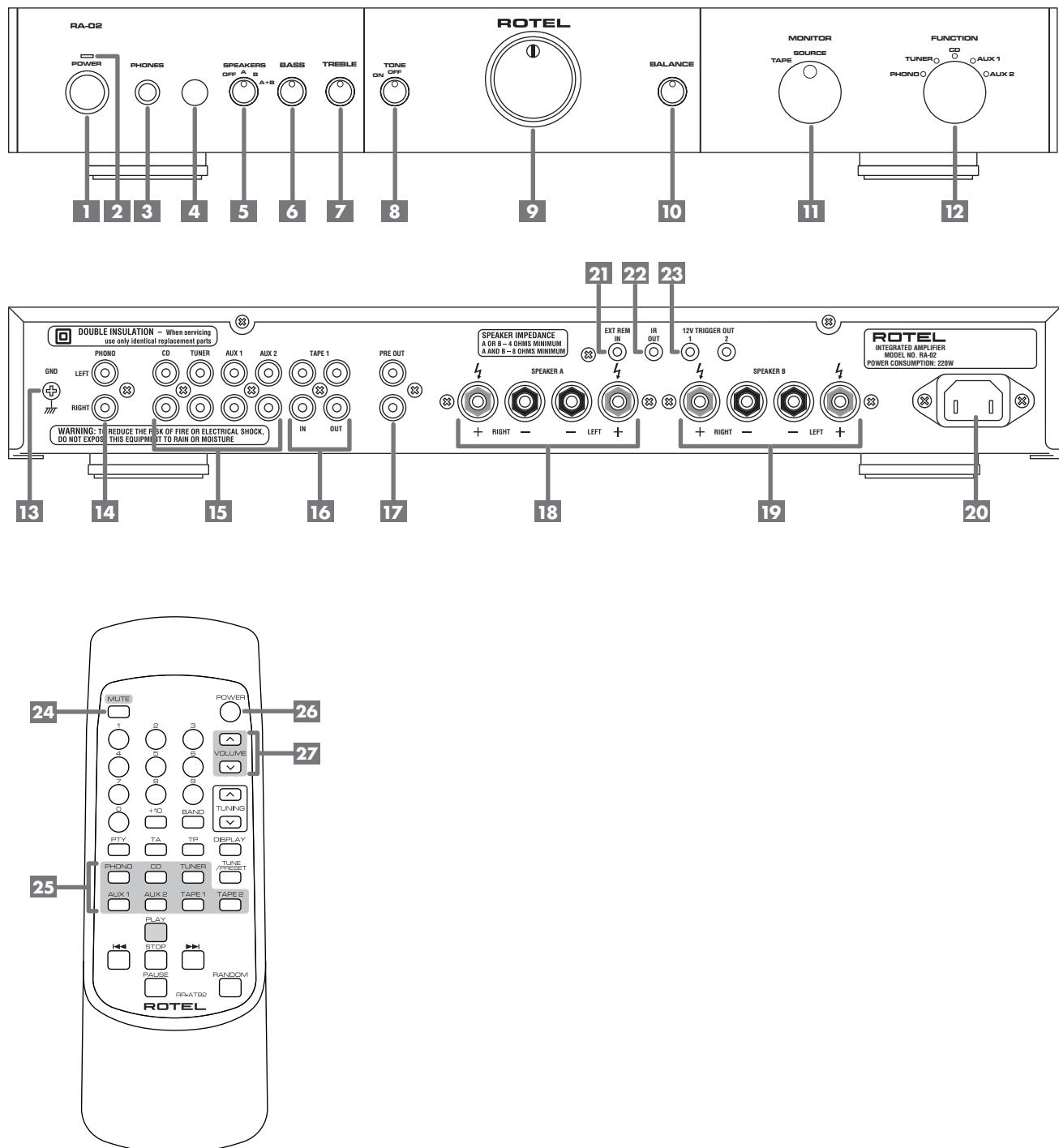
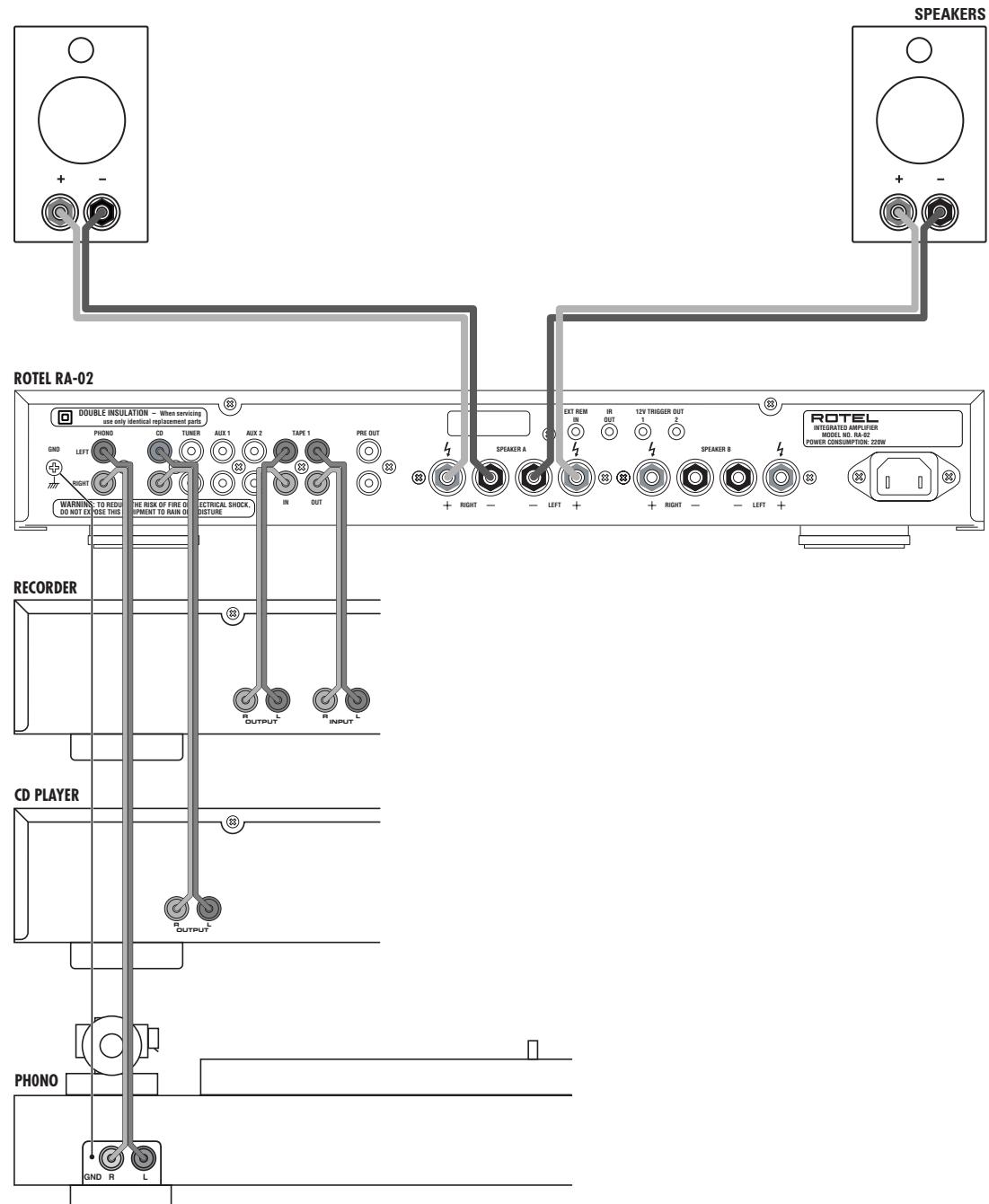


Figure 2: Signal Input and Speaker Output Connections
Signaux d'entrée et branchements enceintes acoustiques
Signaleingang und Anschluß eines Lautsprecherpaars
Collegamenti dei segnali linea in ingresso, del registratore, dei diffusori
Conexiones para Entrada de Señal y Salida a las Cajas Acústicas
Het aansluiten van de lijnbronnen, een opname/weergaveapparaat en de luidsprekers
Anslutningar för ingångssignalerna och högtalarutgångarna



Contents

| | |
|--|----------|
| Figure 1: Controls and Connections | 3 |
| Figure 2: Signal Input and Speaker Output Connections | 4 |
| About Rotel | 5 |
| Getting Started | 5 |
| The RR-AT92 Remote Control | 5 |
| Remote Sensor 4 | 6 |
| A Few Precautions | 6 |
| Placement | 6 |
| Cables | 6 |
| AC Power and Control | 6 |
| AC Power Input 20 | 6 |
| Power Switch 1 26 and Power Indicator 2 | 6 |
| Input Signal Connections | 7 |
| Phono Input 14 and Ground Connection 13 | 7 |
| Line Level Inputs 15 | 7 |
| Recorder Connections 16 | 7 |
| Preamp Outputs 17 | 7 |
| Speaker Outputs 18 19 and Speaker Selector Switch 5 | 7 |
| Speaker Selection | 7 |
| Speaker Wire Selection | 7 |
| Polarity and Phasing | 7 |
| Speaker Connection | 7 |
| Phones Output 3 | 8 |
| Audio Controls | 8 |
| Volume Control 9 27 | 8 |
| Balance Control 10 | 8 |
| Tone On/Off Switch 8 | 8 |
| Bass and Treble Controls 6 7 | 8 |
| Function Control 12 25 | 8 |
| Monitor Control 11 | 8 |
| Mute Control 24 | 8 |
| IR Inputs and Outputs | 8 |
| External Remote Input 21 | 8 |
| IR Output 22 | 8 |
| 12 Volt Trigger Outlet 23 | 9 |
| Troubleshooting | 9 |
| Power Indicator Is Not Lit | 9 |
| Fuse Replacement | 9 |
| No Sound | 9 |
| Specifications | 9 |

About Rotel

A family whose passionate interest in music led them to manufacture high fidelity components of uncompromising quality founded Rotel over 40 years ago. Through the years that passion has remained undiminished and the family goal of providing exceptional value for audiophiles and music lovers regardless of their budget, is shared by all Rotel employees.

The engineers work as a close team, listening to, and fine tuning each new product until it reaches their exacting musical standards. They are free to choose components from around the world in order to make that product the best they can. You are likely to find capacitors from the United Kingdom and Germany, semi conductors from Japan or the United States, while toroidal power transformers are manufactured in Rotel's own factory.

Rotel's reputation for excellence has been earned through hundreds of good reviews and awards from the most respected reviewers in the industry, who listen to music every day. Their comments keep the company true to its goal - the pursuit of equipment that is musical, reliable and affordable.

All of us at Rotel, thank you for buying this product and hope it will bring you many hours of enjoyment.

Getting Started

Thank you for purchasing the Rotel RA-02 Stereo Integrated Amplifier. When used in a high-quality music audio system, it will provide years of musical enjoyment.

The RA-02 is a full featured, high performance component. All aspects of the design have been optimized to retain the full dynamic range and subtle nuances of your music. The RA-02 has a highly regulated power supply incorporating a Rotel custom-designed toroidal power transformer. This low impedance power supply has ample power reserves, which enables the RA-02 to easily reproduce the most demanding audio signals. This type of design is more expensive to manufacture, but it is better for the music.

The printed circuit boards (PCB) are designed with Symmetrical Circuit Traces. This insures that the precise timing of the music is maintained and faithfully recreated. The RA-02 circuitry uses metal film resistors and polystyrene or polypropylene capacitors in important signal paths. All aspects of this design have been examined to ensure the most faithful music reproduction.

The main functions of the RA-02 are easy to install and use. If you have experience with other stereo systems, you shouldn't find anything perplexing. Simply plug in the associated components and enjoy.

The RR-AT92 Remote Control

Some functions can be done with either the front panel controls, or the supplied RR-AT92 remote control. When these operations are described, the call out number for both controls is shown. For example, you can adjust the volume with either the front panel Volume control **9** or the remote control buttons **27**.

See the "IR Inputs and Output" section on page 8 for more information on how to expand the IR control capabilities of your system.

Note: Remove the batteries from the remote control if it will not be used for a long period of time. Do not leave run down batteries in the remote control. Exhausted batteries can leak corrosive chemicals which will damage the unit.

Note: The RR-AT92 can be used to operate the basic function of other certain other Rotel components, including Tuners, CD Players and DVD Players.

To operate a Rotel Tuner —

- 1) Select the tuner function of the RR-AT92.
- 2) Press "Power" and "1" (RT-02) or "2" (RT-940AX).
- 3) Press the key for Tuner operation.

To operate a Rotel CD Player —

Select the CD function of the RR-AT92

To operate a Rotel DVD Player —

Select the AUX 1 function of the RR-AT92.

Remote Sensor **4**

The Remote Sensor picks up the infrared signals from the remote control. Do not cover or block the sensor. It must be unobstructed or the remote control will not work properly. The operation of the Remote Sensor can also be affected if it is exposed to bright light, particularly sunlight. Certain types of lighting, such as halogen lights, that emit a fair amount of infrared light, can also interfere with proper operation. In addition remote control functions may not work reliably if the batteries in the RR-AT92 are weak.

A Few Precautions

WARNING: To avoid potential damage to your system, turn off ALL the components in the system when connecting or disconnecting the loudspeakers or any associated components. Do not turn the system components back on until you are sure all the connections are correct and secure. Pay particular attention to the speaker wires. There must be no loose strands that could contact the other speaker wires, or the chassis of the amplifier.

Please read this manual carefully. It provides information on how to incorporate the RA-02 into your system as well as information that will help you get optimum sound performance. Please contact your authorized Rotel dealer for answers to any questions you might have. In addition, all of us at Rotel welcome your questions and comments.

Save the RA-02 shipping carton and all enclosed packing material for future use. Shipping or moving the RA-02 in anything other than the original packing material may result in severe damage to your amplifier.

Fill out and send in the owner's registration card packed with the RA-02. Also be sure to keep the original sales receipt. It is your best record of the date of purchase, which you will need in the event warranty service is ever required.

Placement

Like all audio components that handle low-level signals, the RA-02 can be affected by its environment. Avoid placing the RA-02 on top of other components. Also avoid routing audio signal cables near power cords. This will minimize the chance it will pick up hum or interference.

The RA-02 generates heat as part of its normal operation. The heat sinks and ventilation openings in the amplifier are designed to dissipate this heat. The ventilation slots in the top cover must be open. There should be 10 cm (4 inches) of clearance around the chassis, and reasonable airflow through the installation location, to prevent the amplifier from overheating.

Remember the weight of the amplifier when you select an installation location. Make sure that the shelf or cabinet can support it. We recommend installing the RA-02 in furniture designed to house audio components. Such furniture is designed to reduce or suppress vibration which can adversely affect sound quality. Ask your authorized Rotel dealer for advice about component furniture and proper installation of audio components.

Cables

Be sure to keep the power cords, digital signal cables and regular audio signal cables in your installation away from each other. This will minimize the chance of the regular audio signal cables picking up noise or interference from the power cords or digital cables. Using only high quality, shielded cables will also help to prevent noise or interference from degrading the sound quality of your system. If you have any questions see your authorized Rotel dealer for advice about the best cable to use with your system.

AC Power and Control

AC Power Input **20**

The RA-02 does not draw high levels of current from the power outlet. However, whenever possible, it should be plugged directly into a 2-pin polarized wall outlet. Do not use an extension cord. A heavy duty multi-tap power outlet strip may be used if it (and the wall outlet) can handle the current demanded by the RA-02 and all the other components connected to it.

Your RA-02 is configured at the factory for the proper AC line voltage in the country where you purchased it (either 115 volts AC or 230 volts AC with a line frequency of either 50 Hz or 60 Hz). The AC line configuration is noted on a decal on the back panel.

NOTE: Should you move your RA-02 amplifier to another country, it is possible to reconfigure it for use on a different line voltage. Do not attempt to perform this conversion yourself. Opening the enclosure of the RA-02 exposes you to dangerous voltages. Consult a qualified service person or the Rotel factory service department for information.

If you are going to be away from home for an extended period of time such as a month-long vacation, it is a sensible precaution to unplug your amplifier (as well as other audio and video components) while you are away.

Power Switch **1** **26** and Power Indicator **2**

Press the front panel Power Switch button, to turn the RA-02 on. The Power Indicator light is illuminated when the RA-02 is on. Press Power Switch button again to turn the RA-02 off.

Once the RA-02 has been turned on with the front panel power switch, it can be switched between normal operating mode and standby mode with the Power button **26** on the RR-AT92 remote control.

See the "12V Trigger Outlet" section for more information on ways you may be able to turn on and off other components in your system along with the RA-02.

Input Signal Connections

[See Figure 2.]

NOTE: To prevent loud noises that neither you nor your speakers will appreciate, make sure the system is turned off when you make any signal connections.

Phono Input 14 and Ground Connection 13

Plug the cable from the turntable into the appropriate left and right phono inputs. If the turntable has a "ground" wire connect it to the screw terminal to the left of the Phono inputs. It will help prevent hum and noise.

Line Level Inputs 15

The CD, Tuner, and Aux inputs of the RA-02 are "line level" inputs. These are for connecting components such as CD players, Hi Fi or NICAM Stereo video cassette recorders, tuners, Laser Disc players or the analog output from a CD ROM drive.

The Left and Right channels are labeled and should be connected to the corresponding channels of the source component. The Left connectors are white, the Right connectors are red. Use high quality RCA cables for connecting input source components to the RA-02. Ask your authorized Rotel dealer for advice about cables.

Recorder Connections 16

[See Figure 2.]

The Tape inputs and outputs can be connected to any record/playback device that accepts standard line level analog input and output signals. Typically that will be a conventional tape recorder.

When connecting a recorder to the RA-02 remember that the outputs of the recorder must be connected to the tape inputs of the RA-02. Similarly the tape outputs of the RA-02 must be connected to the inputs of the recorder. As with other sources be sure to connect the Left and Right channels of each device to the proper channels on the associated components. Use high quality connecting cables to prevent loss of sound quality.

NOTE: The Tape Outputs are not affected by the Volume, Balance or Tone controls. They receive a fixed level signal.

Preamp Outputs 17

The RA-02 has a set of preamp outputs. The signal from the source selected with the Function Selector is always available from these outputs. Typically these outputs are used to provide a signal to another integrated amplifier or power amplifier, which is used to drive remote speakers

NOTE: Changes to the settings of the Volume, Balance or Tone controls affect the signal from the Preamp Outputs.

Speaker Outputs 18 19

Speaker Selector Switch 5

[See Figure 2.]

The RA-02 has two sets of speaker outputs, labeled "A" 18 and "B" 19. The speaker outputs are controlled by the switch 5 on the front panel.

Speaker Selection

If only one set of speakers will be used at any given time, the speakers may have an impedance as low as 4 ohms. If there are times when both the A and B speakers will be used, all the speakers should have an impedance of 8 ohms or more. Speaker impedance ratings are less than precise. In practice, very few loudspeakers will present any problems for the RA-02. See your authorized Rotel dealer if you have any questions.

Speaker Wire Selection

Use insulated two-conductor stranded wire to connect the RA-02 to the speakers. The size and quality of the wire can have an audible effect on the performance of the system. Standard speaker wire will work, but can result in lower output or diminished bass response, particularly over longer distances. In general, heavier wire will improve the sound. For best performance, you may want to consider special high-quality speaker cables. Your authorized Rotel dealer can help in the selection of cables for your system.

Polarity and Phasing

The polarity – the positive/negative orientation of the connections – for every speaker and amplifier connection must be consistent so all the speakers will be in phase. If the polarity of one connection is reversed, bass output will be very weak and stereo imaging degraded. All wire is marked so you can identify the two conductors. There may be ribs or a stripe on the insulation of one conductor. The wire may have clear insulation with different color conductors (copper and silver). There may be polarity indications printed on the insulation. Identify the positive and negative conductors and be consistent with every speaker and amplifier connection.

Speaker Connection

Turn off all the components in the system before connecting the speakers. The RA-02 has color-coded binding post type speaker connectors on the back panel (except in European Community countries where their use is not permitted). These connectors accept bare wire, connector lugs, or dual banana type connectors.

Route the wire from the RA-02 to the speakers. Give yourself enough slack so you can move the components to allow access to the speaker connectors. If you are using dual banana plugs, connect them to the wires and then plug into the backs of the binding posts. The thumbscrews of the binding posts should be screwed in all the way (clockwise).

If you are using terminal lugs, connect them to the wires. If you are attaching bare wires directly to the binding posts, separate the wire conductors and strip the insulation from the end of each conductor. Be careful not to cut into the wire strands. Unscrew (turn counter-clockwise) the binding post thumbscrews. Place the connector lug or wire around the binding post shaft. Turn the thumbscrews clockwise to clamp the connector lug or wire firmly in place.

NOTE: Be sure there are no loose wire strands that could touch adjacent wires or connectors.

Phones Output 3

The Phones output allows you to connect headphones for private listening. This output accommodates standard stereo phone (1/4") plugs. If your headphones have another type of plug, such as a 1/8" mini-plug, you will need an adapter plug. Contact your authorized Rotel dealer, to get the correct adapter plug. Plugging in a set of headphones does not cut off the signal to the outputs. Use the Speaker Selector to turn off the speakers. The settings of the Function Selector and the Tape Monitor Control determines which source is heard. To listen to or monitor the component connected to the Tape input set the Monitor Control to the Tape position. For all other inputs leave the Monitor Control in the Source position and select the source you want to listen to with the front panel Function Selector or press the corresponding source button on the remote control.

NOTE: Because the sensitivity of speakers and headphones can vary widely, always reduce the volume level before connecting or disconnecting headphones.

Audio Controls

Volume Control 9 27

Turn the controls clockwise to increase the volume, or counterclockwise to decrease the volume. Or use the remote control volume buttons. Press the ▲ button to increase the volume, or the ▼ button to decrease the volume.

Balance Control 10

The Balance Control adjusts the left-to-right balance of the sound output. Normally the control should be left in the center position. In some situations, typically when the main listening position is not ideally centered between the speakers, it may be necessary to adjust the control to achieve proper left-to-right balance. Turning the control counter-clockwise shifts the sound balance to the left. Turning the control clockwise shifts the sound balance to the right.

Tone On/Off Switch 8

When the Tone Switch is in the Off position the Bass and Treble Control (Tone Control) circuits are bypassed to ensure the purest possible sound. Leave the Tone Switch in the Off position unless you want to use the Tone Controls. Turn the Tone Switch to the On position if you want to adjust the Tone Controls.

Bass and Treble Controls 6 7

When the Tone Switch is in the On position, turning the Bass and Treble Controls adjusts the tone balance of the sound. Turn the Controls clockwise to increase the bass or treble output. Turn the Controls counterclockwise to decrease the bass or treble output.

A properly set up high-performance audio system produces the most natural sound with little or no adjustment of the tone controls. Use these controls sparingly. Be particularly careful when turning the controls up (clockwise). This increases the power output in the bass or treble range, increasing the load on the amplifier and speakers.

Function Control 12 25

The Function control selects the input signal source. The signal selected by the Function control is the one you hear, as long as the Monitor control is set to the Source position. (See the following section.) The signal selected by the Function control also goes to Preamp Outputs and the Tape Outputs. Turn the front panel Listening Selector to the source you want to listen to. Or press the corresponding source button on the remote control.

Monitor Control 11

When the Monitor Control is set to the Source position, the signal you hear, and which goes to the Preamp Outputs, is selected by the Function Control. To listen to the signal from a recorder connected to the Tape Inputs, set the Monitor Control to the Tape position. When the Monitor Control is in the Monitor position, the signal from the Tape Input also goes to the Preamp Outputs.

The signal that goes to the Tape Output is always selected by the Function Control. When you are recording with a unit that has monitoring capabilities, you can listen to the sound just recorded by setting the Monitor Control to the Monitor position.

Mute Control 24

Remote Only

To temporarily mute the sound of the system press the Mute Button on the RR-AT92 remote. The volume Control LED blinks when the sound is muted. Press the button again to return the sound volume to the original level.

IR Inputs and Outputs

External Remote Input 21

This 3.5 mm mini-jack (labeled EXT REM IN) receives command codes from an industry-standard infrared receivers (Xantech, etc.) located in the main listening room. This feature is useful when the unit is installed in a cabinet and the front-panel sensor is blocked. Consult your authorized Rotel dealer for information on external receivers and the proper wiring of a jack to fit the mini-jack receptacle.

NOTE: The IR signals from the EXTERNAL REMOTE IN jack can be relayed to source components using external IR emitters or hardwired connections from the IR OUT jacks.

IR Output 22

The IR OUT jack sends IR signals received at the EXTERNAL REM IN jack to an infrared emitter, or to Rotel CD players, cassette decks, or tuners with a compatible rear panel IR connector. This allows you to use IR control features to operate other components when the IR sensors on those components are blocked for obstructed by installation in a cabinet.

See your authorized Rotel dealer for information on IR repeater systems.

NOTE: The EXT REM IN jack located next to the IR OUTPUT jack is for use with an external IR sensor which duplicates the front panel IR sensor.

12 Volt Trigger Outlet 23

Some audio components can be turned on automatically when they receive a 12V turn on "signal". The 12V Trigger Outputs of the RA-02 provide the required signal. Connect compatible components to the RA-02 with a conventional 3.5mm miniplug cable. When the RA-02 is in Standby mode, the trigger signal is interrupted, so the components controlled by it are turned off.

Troubleshooting

Most difficulties in audio systems are the result of incorrect connections, or improper control settings. If you encounter problems, isolate the area of the difficulty, check the control settings, determine the cause of the fault and make the necessary changes. If you are unable to get sound from the RA-02 refer to the suggestions for the following conditions:

Power Indicator Is Not Lit

The Power Indicator should be lit whenever the RA-02 is plugged into the wall power outlet and the Power Switch is pushed in. If it does not light, test the power outlet with another electrical device, such as a lamp. Be sure the power outlet being used is not controlled by a switch that has been turned off.

Fuse Replacement

If another electrical device works when plugged into the power outlet, but the Power Indicator of the RA-02 does not light when plugged into the same outlet and the Power Switch is pushed in, it indicates that the internal power fuse may have blown. If you believe this has happened, contact your authorized Rotel dealer to get the fuse replaced.

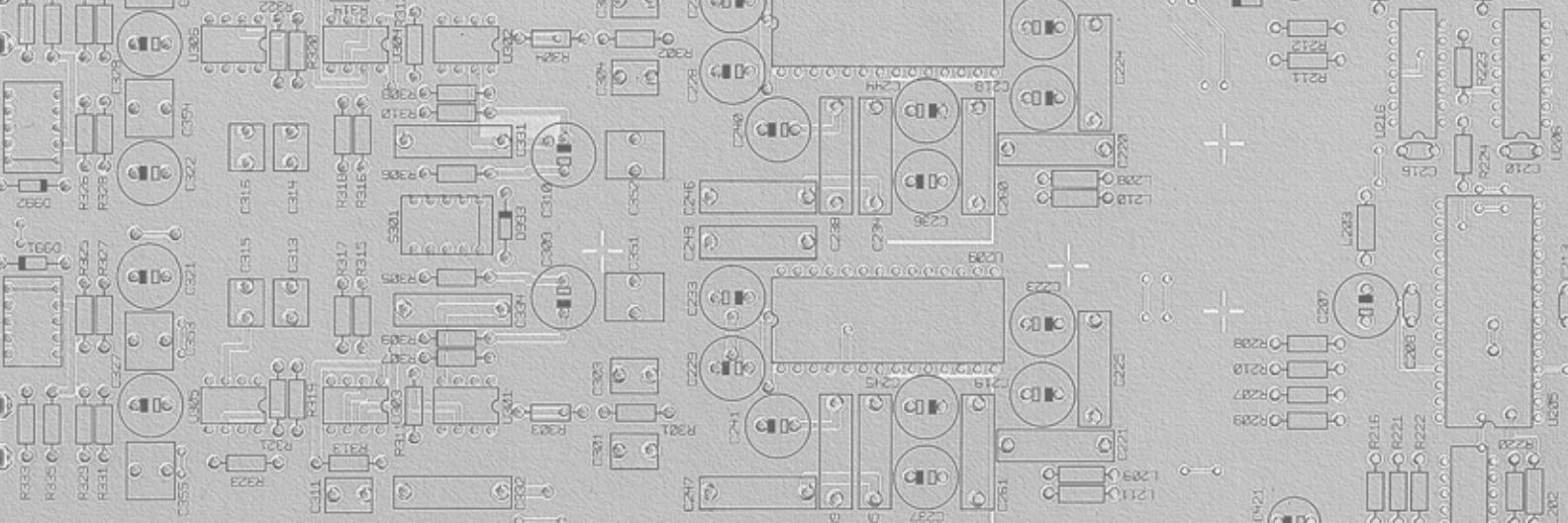
No Sound

Check the signal source to see if it is functioning properly. Make sure the cables from the signal source to the RA-02 inputs are connected properly. Be sure the Listening Selector is set to the proper input. Check the wiring between the RA-02 and the speakers.

Specifications

| | |
|--|--|
| Continuous Power Output (20-20 kHz, < 0.03%, 8 ohms) | 40 watts/ch |
| Total Harmonic Distortion (20Hz-20kHz) | < 0.03% at rated power, 1/2 power or 1 watt |
| Intermodulation Distortion (60 Hz : 7 kHz, 4:1) | < 0.03% at rated power, 1/2 power or 1 watt |
| Frequency Response | |
| Phono Input | 20Hz-15kHz, ±0.3dB |
| Line Level Inputs | 10Hz-40kHz, ±1dB |
| Damping Factor (20-20,000 Hz, 8 ohms) | 180 |
| Input Sensitivity / Impedance | |
| Phono Input | 2.5mV / 47 kOhms |
| Line Level Inputs | 150 mV / 24 kOhms |
| Input Overload | |
| Phono Input | 180mV |
| Line Level Inputs | 5V |
| Premp Output / Impedance | 1V / 470 Ohms |
| Tone Controls - Bass / Treble | ±6 dB at 100Hz / 10kHz |
| Signal to Noise Ratio (IHF "A" weighted) | |
| Phono Input | 80 dB |
| Line Level Inputs | 100 dB |
| Power Requirements | |
| USA Version | 115 Volts, 60 Hz |
| European Version | 230 Volts, 50 Hz |
| Power Consumption | 220 Watts |
| Dimensions (W x H x D) | 435 x 72 x 342 mm 17 ¹ / ₈ x 2 ⁷ / ₈ x 13 ¹ / ₂ " |
| Panel Height | 60 mm / 2 ³ / ₈ " |
| Weight (net) | 5.9 kg, 13 lbs. |

All specifications are accurate at the time of printing.
Rotel reserves the right to make improvements without notice.



ROTEL®

The Rotel Co. Ltd.
10-10 Shinsen-Cho
Shibuya-Ku
Tokyo 150-0045
Japan

Phone: +81 3-5458-5325
Fax: +81 3-5458-5310

Rotel of America
54 Concord Street
North Reading, MA 01864-2699
USA

Phone: +1 978-664-3820
Fax: +1 978-664-4109

Rotel Europe
Dale Road
Worthing, West Sussex BN11 2BH
England

Phone: +44 (0)1903 221 600
Fax: +44 (0)1903 221 525

Rotel Deutschland
Kleine Heide 12
D-33790 Halle/Westf.
Germany

Phone: +49 05201-87170
Fax: +49 05201-73370

www.rotel.com

082 OMRA-02 0030102

English • Français • Deutsch • Italiano • Español • Nederlands • Svenska